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<b>(21) International Application Number:</b> PCT/US97/17776 <b>(22) International Filing Date:</b> 2 October 1997 (02.10.97)  <b>(30) Priority Data:</b> 60/027,354                      2 October 1996 (02.10.96)                      US 08/911,792                      15 August 1997 (15.08.97)                      US  <b>(71) Applicant:</b> E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).  <b>(72) Inventors:</b> SAUM, Kenneth, Ashley; 203 Wilson Road, Newark, DE 19711 (US). SANFORD, William, Michael; 52 Fawn Lane, Kennett Square, PA 19348 (US). DIMAIO, William, Gerald, Jr.; 1306 Longmeadow Road, Boothwyn, PA 19061 (US). HOWARD, Edward, George, Jr.; 844 Old Public Road, Hockessin, DE 19707 (US).  <b>(74) Agent:</b> EVANS, Craig, H.; E.I. du Pont de Nemours and Company, Legal Patent Records Center, 1007 Market Street, Wilmington, DE 19898 (US).		<b>(81) Designated States:</b> AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, HU, ID, IL, IS, JP, KG, KP, KR, KZ, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UZ, VN, YU, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> PROCESS FOR MEDICAL IMPLANT OF CROSS-LINKED ULTRAHIGH MOLECULAR WEIGHT POLYETHYLENE HAVING IMPROVED BALANCE OF WEAR PROPERTIES AND OXIDATION RESISTANCE  <b>(57) Abstract</b>  A medical implant of ultrahigh molecular weight polyethylene having an improved balance of wear properties and oxidation resistance is prepared by irradiating a preform of ultrahigh molecular weight polyethylene, annealing the irradiated preform in the absence of oxygen to a temperature at or above the onset of melting temperature, and forming an implant from the stabilized cross-linked polymer. Implants prepared according to the process of the present invention have comparable oxidation resistance and superior wear performance compared to unirradiated ultrahigh molecular weight polyethylene.		